Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Can artificial intelligence enable the government to respond more effectively to major public health emergencies? ——Taking the prevention and control of Covid-19 in China as an example

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ABSTRACT

In recent years, public health emergencies have occurred frequently, posing a serious threat to the regional economy and the safety of people's lives and property. In particular, the outbreak of the COVID-19 novel coronavirus this year has caused serious losses to the global economy. On this basis, this article attempts to use modern advanced artificial intelligence technology and modern social science and technology to provide technical assistance and support for the prevention and control of major public health incidents, in order to improve the Chinese government's public relations capabilities and response to public health emergencies. Ability and level. This article attempts to use 3S technology closely related to artificial intelligence technology to design and establish a public health emergency response system, so as to improve the government's response and decision-making ability to respond to and deal with public health emergencies, and reduce the occurrence of emergencies. The results showed that among the 298 respondents, 145 believed that public health emergencies depend on human-to-human transmission. Most event information is acceptable, while 169 people who rely on mobile phones for information think that most of them are acceptable, and 89 people who rely on TV media for information think that most of them are acceptable. It shows that the use of artificial intelligence technology can effectively solve and prevent the further development of the situation, and at the same time improve the government's ability and level to respond to major public health emergencies, and increase the government's prestige in the eyes of the public.

1. Introduction

1.1. Background and significance

In recent years, with the rapid development of China's society and economy, various public health emergencies have occurred from time to time, from SARS in 2003 to H1N1 influenza in 2009 to the COVID-19 new coronavirus epidemic in this year. Public health incidents seriously threaten the harmony and stability of society and the safety of people's lives and property. In the process of responding to such major public health emergencies, the concerted efforts of the government and the people are very important. The government plays a major role. The government's response measures and policies, as well as the government's crisis public relations capabilities, are directly related to the safety and security of the people [1]. Therefore, in the process of dealing with major public health emergencies, the effective public relations behavior and measures of the government are very important.

1.2. Related work

With the development of social economy and the improvement of living standards, people are paying more and more attention to their own health and quality of life. The term public health often appears in people's mouths, such as smoking and littering in public places. However, despite this, public health emergencies often occur. For this reason, many experts and scholars have studied cases of public health incidents.

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TianXie, Mengna Ni and others have stated that in view of the unrepeatability, complexity and unpredictability of unconventional public health emergencies, it is difficult to build accurate models and make effective decisions based on traditional prediction-response decision-making methods [2]. In order to solve this problem, they conducted a decision-making framework (PSDF) simulation based on the scenario response paradigm and parallel emergency management and discrete event system (DES) theory [3], including modeling, simulation operations, decision-making optimization methods, and Unconventional public health emergency response process. They took the severe acute respiratory syndrome (SARS) response process as an example, and converted the evolutionary plan including infected patients and the diagnosis process into a simulation process. Their simulation experiment results verified the effectiveness and operability of their proposed DES-PSDF method [4]. Lin Zhang, Wenjing Zhao and others also conducted research and analysis on the COVID-19 new coronavirus outbreak that broke out this year. They stated that as of mid-April 2020, the unprecedented COVID-19 new coronavirus has claimed more than 137,000 lives. Due to its extremely fast spread, the global scientific community is now focusing on slowing, containing and ultimately preventing the spread of this disease. This requires researchers and practitioners in many related fields to act together. In this case, as always, the following questions must be asked: what kind of research must be conducted, what are the priorities, how to coordinate research, and who needs to participate in research. In other words, what are the characteristics of the global research community's response to the challenge. In their article, they attempted to characterize, quantify, and measure the academic response to the international public health emergency through comparative bibliometric studies of multiple outbreaks [5]. In addition, they also conducted a preliminary review of global research efforts to defeat the COVID-19 pandemic. Based on the research and opinions of other experts, public health emergencies have the characteristics of sudden outbreak, rapid oncoming, and great harm. We must pay attention to methods and strategies when responding. This article proposes to use artificial intelligence technology to establish public health emergencies. The emergency command platform enables the prevention and control of the entire epidemic to be carried out in an organized and planned manner, achieving the purpose of macroscopic control and microscopic destruction.

1.3. Innovations in this article

The innovations of this paper are mainly reflected in the following aspects: (1) Public health emergencies have frequently occurred in recent years, which seriously threaten social harmony and stability and the safety of people's lives and property. Based on this, the research content of this paper is of great social practical significance and discussion Value; (2) This article uses the power of modern technology to propose that artificial intelligence technology is embedded in the policy process of major public health emergencies, which has certain practical results; (3) This article uses the COVID-19 outbreak this year to conduct case studies and analyze in detail how the government and the public rely on the power of science and technology to respond to and resolve public health emergencies.

2. Perspective of technology empowerment, artificial intelligence is embedded in major public health emergency response methods and policies

2.1. Traffic prediction and data transmission problems based on artificial intelligence algorithms

(1) Artificial neural networks

The complex nervous system of the human body is built on hundreds of millions of neurons. Therefore, simulating the biological nervous system to build a neural network can help understand and obtain the information hidden in the data. The output of the previous neuron is used as the input of the next neuron, and then input to the next neuron after the weighted integration of the neuron. The forward transmission of neuron information can be expressed by Formula 1.

$$y = f(w_i x_i + b) \tag{1}$$

Among them, x_i represents the input signal, w_i represents the weight, b represents the bias part, the commonly used activation function is the sigmoid model:

$$f(x) = \frac{1}{1+\exp(x)} \tag{2}$$

First, you need to complete the training of the model; then, use the trained model to make predictions. The input flow data sequence can be expressed as $[x_1, x_2, x_3 \cdots]^T \in R^n$, and the output sequence is $[y_1, y_2, y_3 \cdots]^T \in R^n$. In order to obtain an accurate prediction model, the output sequence is compared with the target sequence to adjust the weight parameter W and the bias vector b of the model. Usually the optimization goal can be set as error:

$$E(x) = \frac{1}{2}\sum_{i=1}^{N} \|y_i(x_i) - y_i(x_i)\|^2 \tag{3}$$

Among them, the former represents output data, the latter represents target data, and N represents the number of data. In previous studies, in order to obtain better prediction models, neural networks are often used in combination with other optimization algorithms in traffic prediction.

(2) Support Vector Machines

In nonlinear classification, the mapping from the input feature space to the k dimensional space:

$$x \in R^l \rightarrow y \in R^k \tag{4}$$

It can be realized by the inner product operation of the kernel function. The nonlinear mapping can still be classified by a hyperplane. Once the optimal hyperplane is calculated, the classification can be completed by Formula 5:

$$g(x) = w^T x + w_0 = \sum_{i=1}^{N_s} \lambda_i y_i x_i^T x + w_0 \tag{5}$$

Among them, N_s represents the number of support vectors. The typical choice of kernel function is:

$$K(x,z) = \left(x^T z + 1\right)^q, q > 0 \tag{6}$$

$$K(x,z) = \exp\left(-\frac{\|x-z\|^2}{\sigma^2}\right) \tag{7}$$

$$K(x,z) = \tanh\left(\beta x^T z + \gamma\right) \tag{8}$$

After selecting a suitable kernel function and implicitly defining the mapping to a higher-dimensional space, the Wolfe double optimization task becomes:

$$\max_{\lambda}\left(\sum_i \lambda_i - \frac{1}{2}\sum_{i,j}\lambda_i\lambda_j y_i y_j K(x_i, x_j)\right) \tag{9}$$

The resulting linear classification is:

$$g(x) = \sum_{i=1}^{N_s} \lambda_i y_i K(x_i, x) + w_0 > 0 \tag{10}$$

(3) Logistic regression

Logistic regression is an improvement to linear regression, and can also handle classification problems. However, the weighted summation method of linear regression is difficult to obtain non-linear characteristics. The linear regression is denoted as $f(x) = w^T x$. On the basis of linear regression, using the sigmoid function as the regression function, arbitrarily large values can be normalized between 0 and 1, and the nonlinear relationship in the model can be established.

$$f(x) = p(y|x, w) = \frac{1}{1 + e^{-w^T x}} \tag{11}$$

The regression function constructed above converts the occurrence of (x, y) into a probability, then the cost function of the regression model can be obtained by using the maximum likelihood estimation method. However, it is more difficult to use the cost function to solve the regression parameter w, and it needs to be iterated to solve it. Commonly used methods include gradient descent and its related improved algorithms.

2.2. Public health emergencies

Public health emergencies have the characteristics of sudden outbreak, fierce arrival, severe impact, and lasting damage. It generally refers to those major infectious diseases, epidemics, and unexplained group diseases that occur suddenly and cause or may cause health damage to the public [6]. Major food or occupational poisoning, and other incidents that seriously affect and endanger public health. As a developing country, China is currently in a period of social transformation and is facing severe challenges from various public health emergencies. In recent years, China's public health emergencies have indeed continued, ranging from SARS and avian influenza. Up to now, every outbreak of the new crown virus has caused different degrees of harm to our society and people [7,8].

(1) Characteristics of public health emergencies

Public health emergencies mainly have the following characteristics:

First, suddenness. When public health emergencies happen without warning, they are very sudden, with great chance, and it is often difficult for people to predict [9].

Second, complexity. The complexity of public health emergencies is reflected in three aspects, that is, the cause of the outbreak is complex, the type of outbreak is complex, and the impact it causes is complex [10].

Third, specificity. A public health emergency is an event in the field of public health. It is aimed at the general public, not a certain group or a certain group. It is an outbreak in the whole region rather than a fixed area [11].

Fourth, harmfulness. Due to the sudden outbreak of public health emergencies, people are often difficult to prevent, so the impact is usually more serious, and it will cause a certain degree of damage to the social economy and people's health [12].

Fifth, extensiveness. The widespread nature of public health emergencies is reflected in the diversification of their transmission channels, especially in the era of globalization. There are various modes of transportation, and the flow of people is intensive and frequent [13]. A certain disease carries out cross-regional and transnational transmission through modern transportation flow will cause spread, and once this spread begins, it will spread globally. The new coronavirus epidemic is a good example [14,15].

(2) Classification of public health emergencies

According to the nature, scope, and degree of harm of public health emergencies, they can be divided into different levels, specifically as follows:

First, general public health emergencies. The epidemic occurred in a county or city-level administrative area, and the average incubation period did not exceed 10 cases; the number of food poisoning at a time was 30–99 people without death; if there were less than 9 people with occupational poisoning at a time, it was death; Other general public health emergencies recognized by the health administrative department above.

Second, major public health emergencies. The epidemic is prevalent in county or city-level administrative areas, with an average incubation period of no more than 5 cases; a group of unexplained diseases in a county or city-level administrative area; more than 100 people with food poisoning at a time or deaths; occupational poisoning 10–49 people or less than 4 people died; other major public health emergencies recognized by the health administrative department above the city level.

Third, major public health emergencies. Occurred in a county or city-level administrative area, and more than 5 cases occurred within an average incubation period of 6 days, or the epidemic has spread to more than two counties and cities; suspected infectious diseases such as SARS, avian flu, or pneumonia occurred; A mass disease of unknown cause has occurred and has spread to other areas outside the county and city; a major iatrogenic infection has occurred; the number of food poisoning exceeds 100 and there are deaths, or the number of deaths reaches more than 10; 50 people have been occupational poisoning or more than 5 people died; foreign biological pathogens or biological toxins were introduced into our territory and caused infection or death of domestic personnel; other major public health emergencies recognized by the health administrative department above the provincial level.

Fourth, a particularly major public health emergency. The epidemic has broken out in large and medium-sized cities and has a tendency to spread, or the epidemic has spread to more than two provinces and has a tendency to further spread; suspected infectious diseases such as SARS, avian flu, or pneumonia have occurred and have a tendency to spread; Groups of unknown causes of diseases in three provinces have a tendency to spread; epidemics of extremely large infectious diseases that have occurred outside the country have been introduced into our country and endanger China's public health safety; other particularly major public health emergencies recognized by the health administration department of the State Council [16,17].

2.3. Response methods and policies for major public health emergencies based on artificial intelligence technology

The application of artificial intelligence technology to the response and handling of major public health emergencies proposed in this article mainly involves artificial intelligence controlling the public opinion orientation of new media and using 3S technology to help the government make emergency response and command for public health emergencies.

With the rapid development of network information technology, a large number of new media and self-media have emerged. As an important medium for information dissemination, media has the characteristics of fast dissemination and wide dissemination [18]. In addition, due to the wide audience, the information disseminated by the media will seriously affect the judgment and choice of the public, and the rapidization of network information technology now makes the public understand information very quickly and timely. Therefore, in the event of a public health emergency, the media must disseminate correct news and information, and guide the public to actively and correctly lead the public opinion, otherwise it will easily cause panic among the public and affect the harmony and stability of the society. However, how to control and regulate the reports and news spread by these new media requires the intervention of government departments, and how can the government effectively guide them? For this reason, this paper attempts to make use of the current advanced artificial intelligence technology to realize, by setting the computer program, using artificial intelligence machine to intercept and delete the illegal reports and wrong information of new media and prevent it from flowing to the

public [19].

In addition to stabilizing public opinion and controlling the direction of public opinion, the government should also promptly and actively respond to public health emergencies, which is mainly reflected in the control and command of public health emergencies. 3S technology refers to satellite navigation and positioning technology, remote sensing technology and geographic information technology, which are all extensions of computer technology and have a close relationship with artificial intelligence technology. 3S technology is mainly used in the government's emergency response and command system for public health emergencies. The use of 3S technology can be used by relevant government departments to establish an emergency platform, and use database technology and data visualization technology to timely understand the basic situation of the area where public health emergencies occur [20]. In order to quickly and efficiently rescue the area.

3. Design of an emergency command platform for major public health emergencies based on artificial intelligence-taking the prevention and control of Covid-19 as an example

Timely and effective emergency measures and strategies can greatly reduce the impact and losses caused by public health emergencies. For this reason, this article attempts to use 3S technology closely related to artificial intelligence technology to design and establish a public health emergency response. The command platform, through the integrated processing of various information about public health emergencies, forms intuitive real images or virtual images, thereby improving the government's response and decision-making capabilities in response to and handling public health emergencies, and reducing emergencies. The damage caused by public health incidents to the social economy and the safety of people's lives and property. In order to realize the design of the emergency command platform for this public health emergency in a more specific and targeted manner, this article takes the COVID-19 outbreak that occurred this year as an example.

3.1. Design principles of emergency command platform

Public health emergencies are unpredictable. If there is no systematic and complete public health emergency command platform, it will be extremely easy to cause delays in response, delays in rescue, and failure to take care of them. Therefore, the design goals and principles of the emergency command platform for public health emergencies are to improve emergency command and handling capabilities, ensure unblocked information, integrate resources, and improve the utilization of rescue resources, that is, "combination of peace and war, integration of resources". It is mainly reflected in two aspects: peacetime management and wartime command.

(1) Usual management

When there are no public health emergencies, we should usually pay attention to the maintenance and upgrade of the platform system, carry out statistics, evaluation and prediction on the information and data of past health incidents, and continuously summarize the experience in dealing with public health emergencies. The unified planning of health resources has accumulated a large amount of data. Specifically, it includes the monitoring and reporting of public health emergencies, the data resources of past public health emergencies, the resource database of emergency cases established in accordance with national or local standards, the organization of simulation exercises and training of emergency plans for public health emergencies, establish and manage a provincial-level emergency material reserve information database, do a good job in planning and coordination of public health emergencies, establish a network of contacts, and strengthen exchanges and cooperation between domestic provincial departments and foreign countries.

(2) Wartime command

When a public health emergency occurs, the emergency command platform is mainly used for monitoring, early warning, decision-making, and response to health incidents, as well as recording the entire incident handling process. Specifically include monitoring and early warning of the local and surrounding areas when an incident occurs, organizing expert evaluation, determining the classification of early warning levels, formulating response solutions, uploading and issuing information and instructions, and recording the entire incident analysis and processing process [21].

3.2. Specific design of the emergency command platform

(1) 3S integrated technology assisted positioning

Integrating spatial positioning technology, remote sensing technology and geographic information technology in a system is 3S integration technology [22]. The 3S integration technology can be used to accurately locate the area where public health emergencies occur, quickly obtain information about the area where the event occurs, and use remote sensing the image can transmit the scene situation back to the command center in time. In addition, during rescue, whether it is rescue materials or rescue forces, their dynamic information can be understood through positioning and query, so as to timely and efficiently rescue the disaster-stricken areas. In the COVID-19 new crown virus epidemic prevention and control rescue, caring people and companies from all walks of life donated many disposable medical masks and gloves to Wuhan, the hardest-hit area. The Central Emergency Command Center monitored and located the donated materials in real time [23]. Understand and master the dynamic process of materials; the epidemic situation in Wuhan was also transmitted back to the emergency command center through 3S integration technology, and the command center made real-time prevention, control and treatment of the Wuhan epidemic based on the data information it mastered.

(2) Establish a distributed database

The process of establishing a distributed database is as follows:

First, conduct standardized certification of the obtained data resources to ensure that the data sources are authentic and reliable, and establish a unified logical and physically dispersed distributed database [24];

Second, the government should provide sufficient funds and policy support to ensure that the data resources of the emergency command platform can be continuously updated in real time so that the platform can make reasonable decisions and provide timely and effective early warning;

Furthermore, record and plan the source of data information and extract main data information;

Finally, divide and manage the database, establish a master copy database, and maintain and update it regularly.

(3) Data visualization operation

After the distributed database is established, the next step is to visualize the data. Through the use of computer technology and image processing technology, the obtained data information is converted into graphics or images and displayed on the computer screen. The data and information related to public health emergencies are massive, and the analysis and processing are particularly complicated. After the data is visualized, the data and geographic location can be analyzed intuitively, so that the laws and information hidden behind the data can be revealed. Moreover, the actual scene can be vividly restored through the reproduction of three-dimensional images, which can provide a strong guarantee for the decision-making of the emergency command platform.

(4) Work process of emergency command platform

The work content of the emergency command platform includes alerting to public health emergencies, analysis and early warning, decision-making and response plans, processing and summary, etc. The specific process is shown in Fig. 1.

3.3. Simulation experiment taking the prevention and control of the new crown epidemic as an example

When conducting a simulation experiment of emergency command for real public health emergencies, we must first understand the topographic environment of the place where it occurs. Take this Wuhan new crown epidemic as an example, use 3S integration technology to locate the outbreak area in Wuhan and obtain relevant data and information, and then use 3D virtual reality technology to convert the data resources into image data, and then the command center will use the image information to analyze, evaluate and make decisions about the epidemic in Wuhan. The specific implementation steps are as follows:

First: draw a three-dimensional simulation map. The topographic data of Wuhan obtained by 3S integration technology is divided into several data blocks, and then the data blocks in the visible area are formed into a scene with the viewpoint as the reference center, and a three-dimensional simulation map of Wuhan is established.It is worth noting that the number of models should be minimized to improve the efficiency of visual display. Assuming that the width of the data block is X and the length is Y, the displacement in the two directions between the current position (x_e, y_e) of the viewpoint and the geometric center (x_c, y_c) of the data page is:

$$distX = x_e - x_c$$
$$distY = y_e - y_c$$

Second: Set the LOD parameters of the terrain data block. LOD refers to the multi-level of detail of the object model. The setting of the LOD parameters for the Wuhan terrain data block is to display the location and importance of its 3D simulation map, determine the resource allocation for rendering, and reduce the number of faces in other areas. The level of detail can improve the rendering and clarity of the epidemic area. For map data, pay attention to the scale of the data. If the actual map data is 1:100,000, the scale of the 3D simulation map should be 1:5000. The relevant formula is:

$$y = \sin\alpha \bullet cis\beta \bullet \cos\gamma \pm \cos\alpha \bullet \sin\beta$$

4. Role of using artificial intelligence to control the public opinion orientation of new media in major public health emergencies

With the development of information network technology, a large number of communication software and short video platforms have emerged [25]. The emergence of new media has made more and more people have the courage to express their opinions and speak their aspirations. During the new crown epidemic, people across the country express your opinions through WeChat, Weibo and Douyin short video platforms. Although this new media overcomes the disadvantages of traditional media's one-way information dissemination, it also exposes the drawbacks of its two-way communication. We know that network information dissemination has the characteristics of wide range and fast speed. Although new media has improved the interaction with the masses, it is also very easy to cause the rise of rumors. Once the information is transmitted incorrectly, the extent of the epidemic will be exaggerated, which will easily cause social problems. Panic affects social harmony and stability. Therefore, in dealing with major public health emergencies, we must pay attention to the information dissemination of new media and control the direction of public opinion. This goal can be achieved through artificial intelligence technology. In order to better research and analyze how to control the public opinion of new media, we released a week-long random questionnaire survey on the online

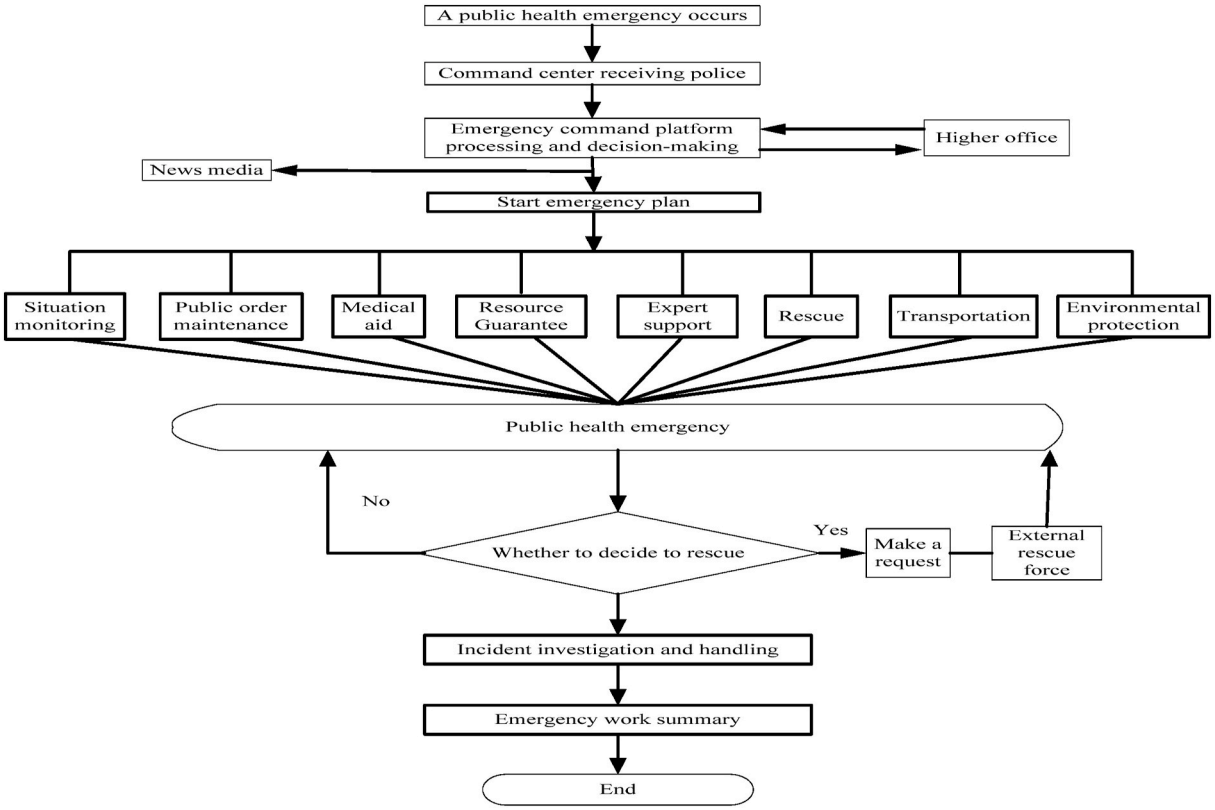

Fig. 1. Emergency workflow for public health emerge.

professional questionnaire survey platform. A total of 312 questionnaires were collected. After deleting the wrong filling and filling in the questionnaire, we finally A total of 298 valid questionnaires were obtained, and the effective recovery rate was 95.5%. The content of the questionnaire is mainly about the people's choice of the media, that is, the media to obtain information when a public health emergency occurs, and the people's new trust in the information disseminated by the media [26].

4.1. First channel for people to obtain information on public health emergencies

When a public health emergency occurs, the public will obtain the news and information they want through a variety of channels. According to the results of the questionnaire survey, the public generally obtains information on public health emergencies through Through the Internet channels such as Weibo, WeChat official account platform, Douyin short video, news network, and other traditional media such as newspapers and magazines, television, radio, and others, others inform them [27]. In this questionnaire, we surveyed the public's methods and channels for obtaining SARS in 2003, N1N1 avian influenza in 2009, and this year's new coronavirus epidemic. The statistical results are shown in Table 1 and Fig. 2.

Table 1 and Fig. 2 show that the public's access to information in public health emergencies in each year is different. When the SARS outbreak occurred in 2003, because new media such as Weibo, WeChat and Douyin had not yet appeared, the sources of information obtained by the people mainly rely on traditional media such as newspapers, magazines and television broadcasting. Among them, television broadcasting is the main source of information obtained by the people, accounting for 59.23%, followed by newspapers and magazines, accounting for 14.32%. In addition, QQ social software is also obtained by people. One of the important channels for SARS information, accounting for 14.3%; when the H1N1 avian flu occurred in 2009, Weibo, WeChat and other software began to rise, and a small number of users relied on it to obtain H1N1 related reports and information. At this time, the TV broadcast was still the main channels for the public to obtain news about the epidemic and accounted for 51.14%, but the proportion has declined compared with 2003. Secondly, the proportion of obtaining news through QQ and news networks has increased, accounting for 23.65% and 11.58%, respectively. The proportion of Newspapers and magazines has dropped to 10.95%; and in 2020, with the further development of new Internet media, Weibo and WeChat platforms have developed and improved rapidly, and the emergence of Douyin short videos has further broadened the channels for the public to obtain epidemic information. At this time, we can see that the main channels for the public to obtain news about the new crown virus are Weibo, WeChat and Douyin, which together account for 91.51% of the total. It can be seen that new media for obtaining information on public health emergencies have an absolute advantage.

4.2. People's trust in traditional media to disseminate information

Traditional media mainly include newspapers and magazines, TV broadcasts, and mobile phone text messages. The public's trust in public health emergency information transmitted by traditional media is shown in Fig. 3.

It can be seen from Fig. 3 that among the 298 survey respondents, the vast majority of people expressed trust in the information on public health emergencies disseminated by traditional media. Among them, 41.27% believed that the information dissemination was very accurate. 41.94% think it is relatively accurate, and only a small number of people think that the information reported by traditional media is inaccurate.

4.3. Public's trust in the information disseminated by new media

When investigating the credibility of public health emergencies disseminated by new online media, we found that people of different ages hold different attitudes towards it. The results are shown in Fig. 4.

From the statistical survey results in Fig. 4, it can be seen that people of different age groups have different attitudes towards the credibility of public health emergencies spread by new online media. Among them, people in the 18–58 age group believe that new media spread Most of the news of public health emergencies are unreliable, while the majority of people <18 years old believe that most of the news from the new media can be trusted, and the majority of people >58 years old believe that most of the news from the new media is unreliable. The reason why people of different age groups have different attitudes towards it is because people of different age groups look at problems from different angles and ways. For minors, they are curious about the Internet, and they look at problems relatively simply. For people in the 18–58 age group as the largest audience of new media, they lack correct judgments about right and wrong. They know that the cost of online news is low and the true and false information is mixed, so they have low trust in online new media.

4.4. Public's acceptance of different ways to obtain information on public health emergencies

Through the survey, statistics of the public's acceptance of different ways to obtain information on public health emergencies are shown in Fig. 5.

It can be seen from Fig. 5 that the public's acceptance of public health emergencies is considered acceptable by the vast majority of people. Among the 298 survey respondents, 145 people believe that public health emergencies rely on interpersonal transmission. Most of the incident information is acceptable, while 169 people who rely on mobile phones to obtain information think that most of them are acceptable, and 89 people who rely on television media to obtain information think that most of them are acceptable. Secondly, some people think that these three types of information are acceptable. The method is completely acceptable, and a few people think that the information obtained by these three methods is completely unacceptable.

5. Conclusions

The development of modern society has caused a large number of high-tech methods to be applied to all aspects of society. Among them, artificial intelligence technology is widely used in complex human intelligent operations with its powerful computing functions and control systems. When responding to major public health emergencies, the use of artificial intelligence technology can effectively solve and prevent the further development of the event situation, at the same time, it also improves the government's ability and level to deal with major public health emergencies and enhances the government's prestige in the eyes of the public. This paper applies the theory of crisis management and

Table 1
The first channel for the public to obtain public health emergencies.

Public health emergency	Weibo	WeChat	QQ	Douyin	News site	Newspapers and magazines	TV broadcast	Informed by others
SARS	0%	0%	14.3%	0%	9.63%	14.32%	59.32%	2.43%
H1N1	0.63%	0.48%	23.65%	0%	11.58%	10.95%	51.14%	1.57%
COVID-19	43.67%	22.16%	3.75%	25.68%	2.37%	1.03%	4.69%	0.4%

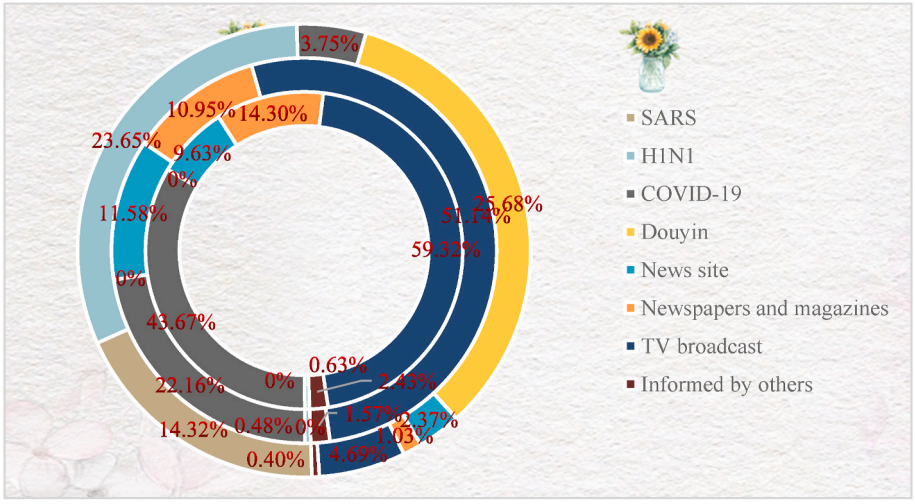

Fig. 2. The first channel for the public to obtain public health emergencies.

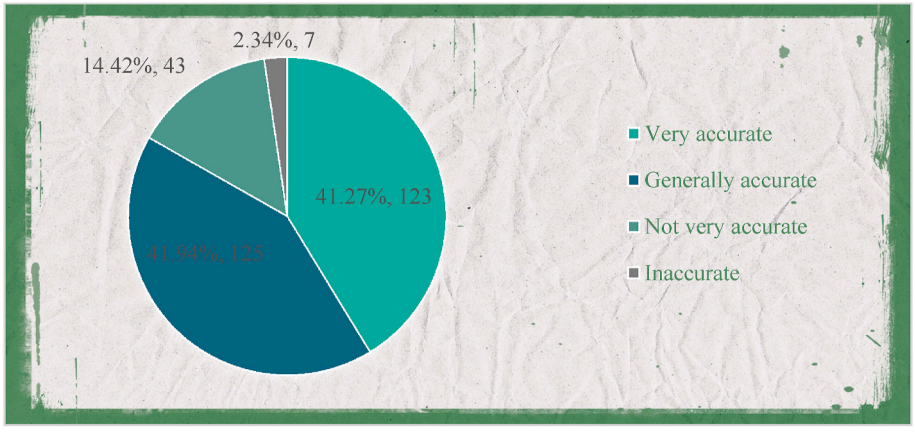

Fig. 3. People's trust in public health emergency information disseminated by tradit

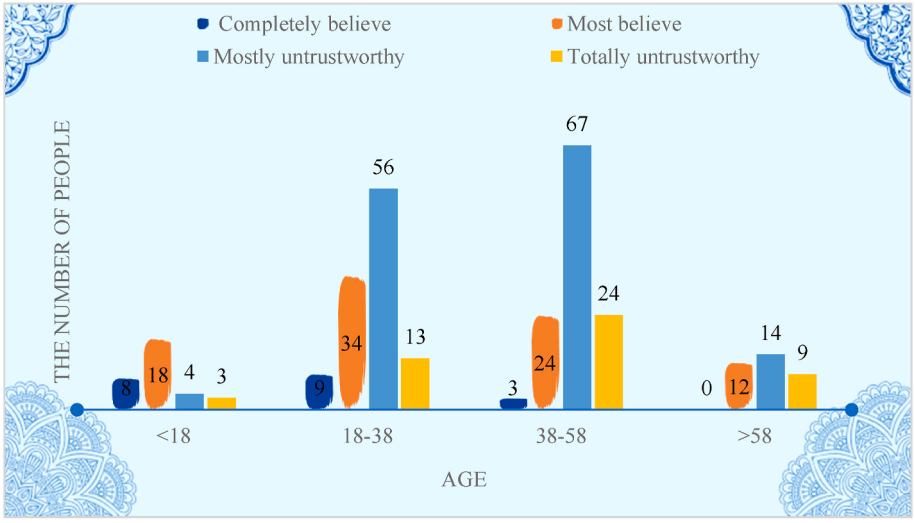

Fig. 4. The public's trust in the information disseminated by new media.

government management to the emergency response to public health emergencies, and proposes corresponding countermeasures for the government's inadequate ability in emergency response to public health emergencies. Emergency response capabilities for public health incidents are helpful.

This research uses the 3S technology closely related to artificial

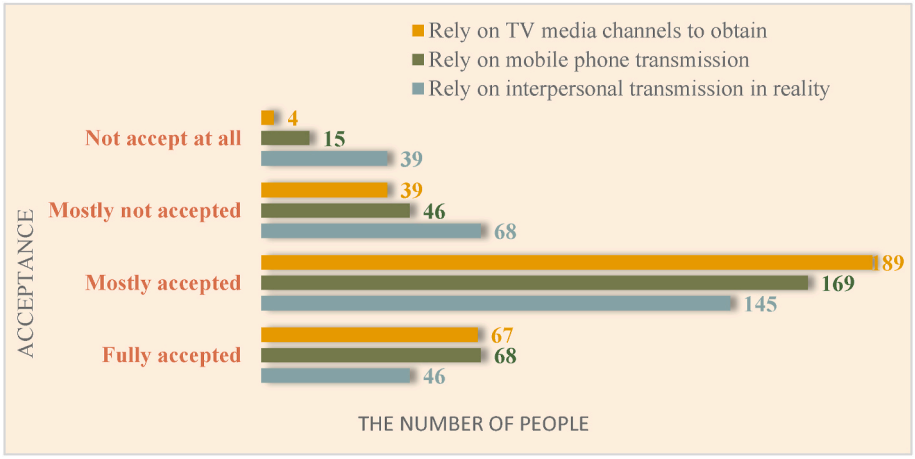

Fig. 5. The public's acceptance of different ways to obtain information on public health emergencies.

intelligence technology to propose the establishment of an emergency command platform for public health emergencies, through 3S technology to accurately locate the place where public health emergencies occur, and establish a three-dimensional map of the area, so as effective monitoring and prevention and control shall be implemented in the place of occurrence to improve the decision-making ability of the emergency command center. This article is to improve the government's ability to deal with public health emergencies. By defining core concepts such as public health emergencies and government emergency response, basic theories such as crisis management theory, risk society theory, and local government management theory are explained. It analyzes the prominent problems exposed by the government in the emergency response to this public health emergency. The analysis puts forward the problem and reason analysis of the government's weak emergency response capability in the current public health emergency response. And draw lessons from the results of crisis management theory and local government management theory, and put forward corresponding countermeasures to improve the government's ability to respond to public health emergencies.

In addition to effective prevention and control of the epidemic, it is necessary to strengthen the management and control of new media and public opinion, and control the correct orientation of public opinion. Due to the rapid development of network information today, the public has various channels and methods for obtaining and receiving information. Once misinformation about public health emergencies is spread to the public, it will easily cause social panic and affect social harmony and stability. Therefore, relevant government departments can strengthen the purification of the network environment with the help of artificial intelligence technology, control the false reports on public health events by new media, and guide the correct guidance of public opinion, so as to strengthen the effective response and governance ability to public health emergencies.

Author statement

L. Z. reviewed relevant literature and supervised the work and acquired fund for the research. P. C. provided most of the writing, review and editing, and made the original draft preparation. D. D. D. developed the conceptualization and research methodolog Z. W.analyzed the data and made calculation.

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